REMARKS

The Office Action dated April 25, 2003, has been received and carefully noted. The preceding amendments and the following remarks are submitted as a full and complete response thereto. Claims 10, 12, 14-16, 22, 24-25 have been amended. The amendments to the claims are cosmetic in nature and do not narrow the claims. No new matter has been added. Claim 21 is cancelled without prejudice or disclaimer. Accordingly, claims 1-20 and 22-25 are pending in this application and are submitted for consideration.

Claims 10, 14, 15 and 22 were objected to for a number of informalities. Claims 10, 14, 15 and 22 have been amended as to matters of form, which adequately addresses the objections. Accordingly, the Applicant requests that the objections be withdrawn.

Claims 16, 22 and 25 were rejected under 35 U.S.C. § 112, first paragraph as containing subject matter which is not enabled by specification. The rejection of claims 16 and 22 relate to the "actuation element", which the Examiner asserted is not described in the specification. Paragraph 29 of the specification adequately describes the actuation of the movable or moving member 44, by varying the voltage potential between the signal line 32 and the movable member 44. Signal line 32 may be considered to be the actuation element. Paragraphs 17 and 29 of the specification are amended to express the correspondence between the signal line 32 and the actuation element. No new matter is added.

Regarding the rejection of claim 25, curing and baking are well-known, standard processes in the subject fabrication methods, and one having ordinary skill in the art would readily understand claim 25 after reviewing the specification. Claim 25 merely requires a baking step to be performed after a curing step. There is no particular limitation to how to cure the device, and therefore, one having ordinary skill in the art would understand that a number of conventional curing steps could be performed. Thus, Applicants submit that claims 16, 22, and 25 are enabled and comply with the requirements of 35 U.S.C. § 112. Accordingly, the Applicant requests that the rejection be withdrawn.

Claims 7, 12, 16, 22, 24 and 25 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. In particular, a number of antecedent basis issues were raised in the Office Action. Claims 7, 12, 16, 22, 24 and 25 are amended herein to cure any issues of form. Thus, the Applicant submits that claims 7, 12, 16, 22, 24 and 25 comply with the requirements of 35 U.S.C. § 112. Accordingly, the Applicant requests that the rejection be withdrawn.

Claim 21 was found to contain allowable subject matter. The remaining claims, 1-20 and 22-25, were rejected in view of a number of prior references:

- Claims 1, 2, 4-6, 8-12, 16 and 18 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. patent no. 6,174,820 to Habermehl et al. ("Habermehl");
- Claims 22-25 were rejected under 35 U.S.C 102(b) as being anticipated by U.S. Patent No. 5,798,283 to Montague et al. ("Montague");

- Claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over Habermehl;
- Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Habermehl in view of U.S. patent No. 6,534, 413 to Robertson, III et al. ("Robertson");
- Claim 13 was rejected under 35 U.S.C §103(a) as being unpatentable over Habermehl in view of U.S. published application 2003/001251 to Cheever et al. ("Cheever");
- Claim 14 was rejected under 35 U.S.C §103(a) as being unpatentable over Habermehl in view of U.S. published application 2002/0181725 to Johannsen et al. ("Johannsen");
- Claims 15 and 19 were rejected under 35 U.S.C §103(a) as being unpatentable over Habermehl in view of U.S. published application 2002/0096421 to Cohn et al. ("Cohn");
- Claim 17 was rejected under 35 U.S.C. §103(a) as being unpatentable over Habermehl in view of U.S. published application 2003/0025984 to Gudeman et al. "Gudeman"); and
- Claim 20 was rejected under 35 U.S.C. §103(a) as being unpatentable over Habermehl in view of U.S. patent no. 5,723,171 to Cuchiaro et al. ("Cuchiaro").

All of the rejected claims were rejected over the primary reference of Habermehl, except for claims 22-25, which were rejected solely over Montague.

Habermehl describes an MEM structure and method of fabricating the structure, wherein the structure is formed in a cavity of substrate. In the Office Action, the Examiner referred to Figs. 5a to 5q to support the rejections. Habermehl describes and shows a number of sacrificial layers being deposited and etched, and then a number of doped polysilicon layers are deposited in between the sacrificial layers in order to form an MEM structure having a top electrode 12, a bottom electrode 12, and a movable member 10 that is supported by two pillars (22, 32, 36, 38), and which is suspended between the two electrodes. This process includes depositing at least five sacrificial layers over the top of the cavity and substrate. After all five sacrificial layers are deposited, the entire substrate is planarized down to a nitride layer of 64. Only after the substrate is planarized, then a layer of silicon nitride 70 is deposited over the entire substrate. Circuitry is then deposited onto the substrate during a number of fabrication steps connecting transistors to the MEMS device. After additional electronic circuitry is deposited, openings 92 are etched into the silicon nitride layer 70, and the plurality of sacrificial layers are then removed. After the sacrificial layers are removed, the channels 92 can be plugged from a sealed-cavity with silicon nitrate plugs 94 or with an evaporated metal. See column 16, lines 48-52.

Habermehl shows and describes an encapsulating layer of silicon nitride being deposited over the plurality of sacrificial layers after planarization. However, there is no step of coating the second sacrificial layer with a first film, which in turn encapsulates the moving member, as required by independent claim 1 of the present invention. None of the secondary references make up for the above-described deficiencies of

Habermehl. Thus, Habermehl, either alone or in combination with any of the cited prior art, fails to disclose, describe or suggest each and every element of claim 1, and 2-15 which depend thereon. Accordingly, the Applicant requests that the rejection be withdrawn and claims 1-15 be allowed.

Claim 16, upon which claims 17-20 depend, has been amended to include the limitations of allowed claim 21. Therefore, claims 16-20 are now allowable. Accordingly, the Applicant requests that the rejections be withdrawn and claims 16-20 be allowed.

Regarding the rejection of claims 22-25, independent claim 22 requires the step of forming a moving member above the actuating element by applying a first sacrificial layer over the actuating element, and depositing conductive metal such that the material extends from the control circuit to cover the first sacrificial layer. Montague shows support beams 26 that are formed in a gap in the sacrificial layer and overlap only a small portion of the sacrificial layer, and certainly do not cover the layer. The support beams are described as being fixed support beams. See column 6, lines 8-23 of Montague. Montague describes a three-layer process that is advantageous for mechanical interconnecting elements of a MEM device 12. The additional polysilicon layers may be deposited, at least in part, through one or more patterned sacrificial layers at 30 for defining a shape of the MEM elements, and for performing anchor portions for mechanical and electrical connections to the first-deposited polycilicon layer 24. Montague does not teach a step of forming a moving member above the actuating element by a applying a first sacrificial layer over the actuating element, depositing

conductive material such that it extends from the control circuit to cover the first sacrificial layer, and removing portions of the sacrificial layer around the moving member but not between the moving member and the substrate, as required by claim 22. Thus, Montague fails to show or describe each and every element of claims 22-25. Accordingly, the Applicant requests that the rejection be withdrawn and claims 22-25 be allowed.

In view of the above remarks, the Applicant respectfully submits that each of claims1-20 and 22-25 recite subject mater which is neither disclosed nor suggested in the cited prior art. The Applicant submits that this subject matter is more than sufficient to render the claimed invention unobvious to a person of ordinary skill in the art. The Applicant therefore requests that each of claims1-20 and 22-25 be found allowable, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the Applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event that this paper is not timely filled, the Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account No. 02-2135.

Respectfully submitted,

By _____
Brian A. Tollefson, Reg. No. 46,338
Attorney for Applicant
Rothwell, Figg, Ernst & Manbeck, P.C.
Suite 800, 1425 K Street, NW
Washington, D.C. 20005
Telephone: (202) 783-6040
Facsimile: (202) 783-6031
Customer No. 6449